

CLAIMS

What is claimed is:

1. An apparatus for providing a voltage transformation, comprising:
 - a PCB having a plurality of conductive layers electrically separated by a plurality of insulating layers, and a plurality of conductive vias connecting the conductive layers at selected locations;
 - a plurality of primary windings having a specified order;
 - a plurality of secondary windings having a specified order; and
 - wherein a first one of the plurality of primary windings is disposed on a first one of the plurality of conductive layers of the PCB, a first one of the secondary windings is disposed upon a second one of the plurality of conductive layers of the PCB, a second one of the plurality of primary windings is disposed upon a third one of the plurality of conductive layers of the PCB, a second one of the plurality of secondary windings disposed upon a fourth one of the plurality of conductive layers of the PCB, continuing until each individual one of the plurality of primary and plurality of secondary windings is disposed upon a separate one of the plurality of conductive PCB layers.
- 20 2. The apparatus of claim 1 wherein further the odd numbered primary windings spiral inward toward a core region in one of either a clockwise or counter clockwise direction;
 - the even numbered primary windings spiral outward from the core region in the same direction as the odd numbered primary windings;
- 25 3. The odd numbered secondary windings spiral inward toward the core region in the same direction as the primary windings; and
 - the even numbered secondary windings spiral outward from the core region in the same direction as the primary windings.
- 30 3. The apparatus of claim 2 wherein the odd numbered secondary windings spiral outward from the core region, and the even numbered secondary windings spiral inward.

4. The apparatus of claim 1 wherein the plurality of conductive PCB layers is smaller than the plurality of primary and secondary windings, and the remaining individual ones of the primary and secondary windings are disposed upon at least a second multilayered PCB disposed upon a face of the PCB and having electrical communication with the PCB.
5. The apparatus of claim 4 wherein further at least a third multilayered PCB is disposed upon the opposite face of the PCB from the at least second PCB, and having electrical communication with the PCB.
- 10 6. The apparatus of claim 1 wherein an end of the first primary coil is electrically connected to an end of the second primary coil using a selected one of the plurality of vias.